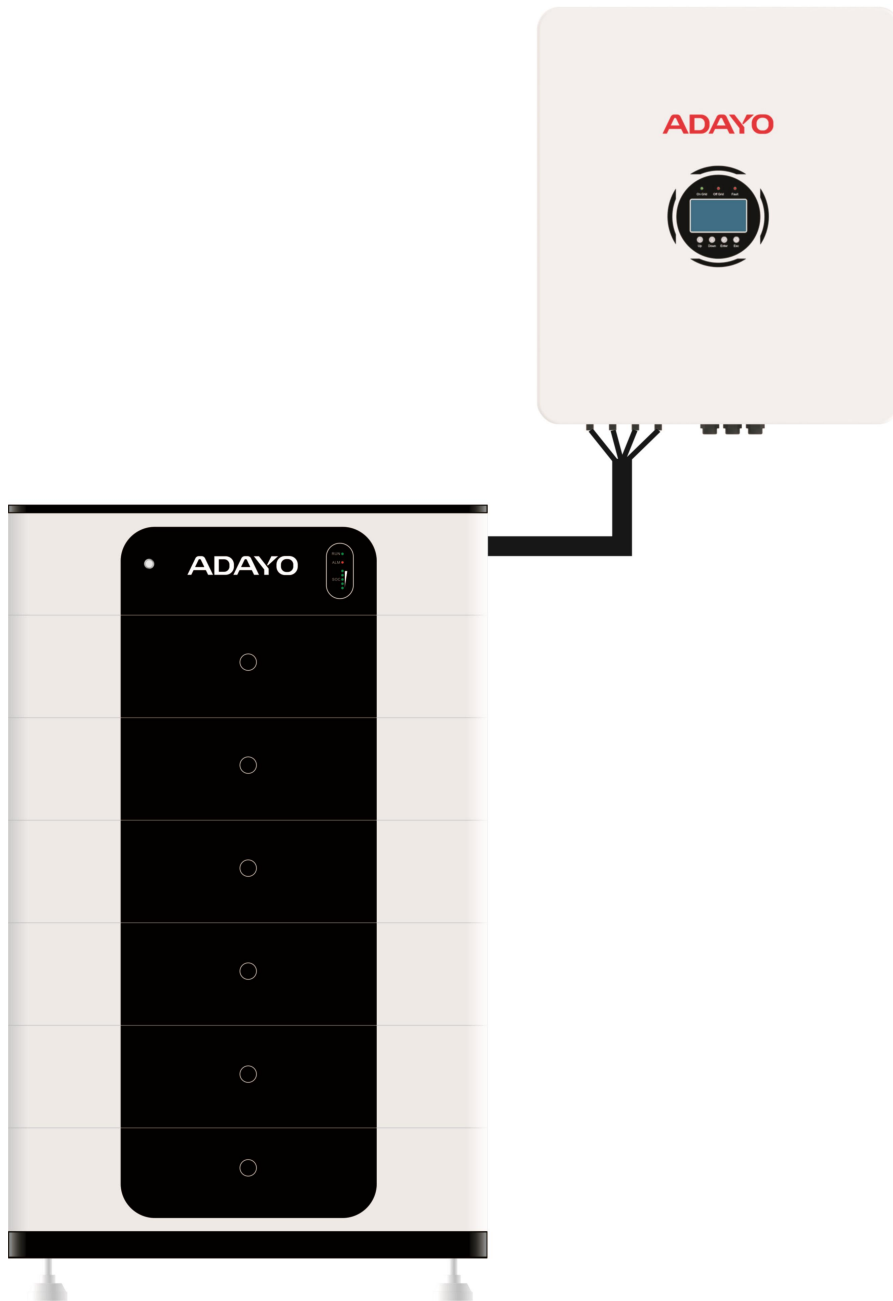


高压三相逆变系统规格书

Approval Sheet



(高压三相 15KW 逆变器+高压堆叠电池 30KWH)

(High voltage three-phase 15KW inverter+high-voltage stacked battery 30KWH)

Customer No. 客户代码	
Product Model 产品型号	EC15P3H+HV30K
Product Code 产品编码	
Cell Type 电芯类别	Lithium Iron Phosphate
Pack Mode 组合方式	1P32S
Nominal Voltage 电压	614.4V
Nominal Capacity 容量	50Ah

Prepared by 制作	Checked by 审核	Approved by 批准
Mark		

Approved by customer 客户承认 (Stamp) (盖章)	Prepared by 测试/日期	Checked by 审核/日期	Approved by 批准/日期

修订记录

Product Modification Record List

Revision No. 版本号	Description 内容描述	Modify 修改人	Approval 审批人	Date 日期
A/0	First Issue 新版发行	Mark		2024-04-16

1. 使用范围 Scope

本规格书只适用于惠州市华阳光电技术有限公司所生产的高压三相逆变器+高压堆叠磷酸铁锂充电电池包。

This specification only applies to high-voltage three-phase inverters and high-voltage stacked lithium iron phosphate rechargeable battery packs produced by HUIZHOU FORYOU OPTOELECTRONICS TECHNOLOGY CO.,LTD

2.规格书修订 The Specification Amendment

如因原材料、生产制程、生产系统或电池使用环境或其他条件发生改变，修订方需将改变的信息以书面形式通知对方取得供需双方同意后再行修订。

If the raw materials, production processing, production system or battery usage environments & other conditions need to be changed, the amendment side needs provide the written advice to the other side, only the both sides come to agreement, the amendment will be effective.

3.设备产品或电芯的测试条件 Product or Cell testing conditions

建议采用新生产的电池组和新的电芯作相关的测试。除非有特别要求，否则测试需要在温度 $20\pm 5^{\circ}\text{C}$ ，相对湿度 45~75%的条件下进行。

It is recommended to use newly produced battery packs and new cells for related tests. Unless specified, testing and measurement shall be done under temperature of $20\pm 5^{\circ}\text{C}$ and relative humidity of 45~75%.

4.标准 Standard

4.1 参考标准 Reference Standard

参考 GB 31241-2014 便携式电子产品用锂离子电池和电池组安全要求 参考 UL1642 安全标准- (锂电池)

参考 GB/T 31486-2015 电动汽车用动力蓄电池电性能要求及试验方法 参考 GB/T 31485-2015 电动汽车用动力蓄电池安全要求及试验方法

参考 GB/T 31484-2015 电动汽车用动力蓄电池循环寿命要求及试验方法

4.2 测量器具及设备 Measuring Instrument and Apparatus

4.2.1 尺寸测量器具 Dimension Measuring Instrument

尺寸测量器具的精度等级应不小于 0.02 mm。

The dimension measurement shall be implemented by instruments with equal or more precision scale of 0.02mm.

4.2.2 伏特计

按照国家标准指定规格等级或采用灵敏度更高的，测量电压时内阻不应小于 $10\text{k}\ \Omega/\text{V}$ 。

Voltmeter Standard class specified in the national standard or more sensitive class having inner impedance more than $10\text{k}\Omega/\text{V}$

4.2.3 安培计 Ammeter

按照国家标准指定规格等级或采用灵敏度更高的，包括电流表及电线在内的总外阻应小于 0.01Ω 。

Standard class specified in the national standard or more sensitive class. Total external resistance including ammeter and wire is less than 0.01Ω .

4.2.4 电阻计 Impedance Meter

内阻测试仪测量原理应为交流阻抗法 (1kHz LCR)。

Impedance shall be measured by a sinusoidal alternating current method (1kHz LCR meter).

4.3 环境温度: $20^{\circ}\text{C}\pm 5^{\circ}\text{C}$

Testing Conditions (Unless Specially Requirements) Temperature: $20^{\circ}\text{C}\pm 5^{\circ}\text{C}$

环境湿度: ≤75%Relative Humidity: ≤75%

5. 系统主要参数 System rating

项目 Item	参数 Rating	备注 Note
交流最大输入/输出功率 Max.AC input/output power	15KW	
电池能量 Battery Energy	30.72Kwh	
光伏最大输入功率 Max.PV Input Power	22.5KW	
光伏最大输入电压 Max.PV Input Voltage	1000V	
额定输出电压 Nominal Output Voltage	3/N/PE,220V/380V, 230V/400V	
额定输出功率 Nominal Output Frequency	50/60Hz	
AC 最大输入电网电流 Max. AC Current to Grid	22.7A	
电网 AC 最大输入电流 Max. AC Current from Grid	36A	
WIFI 远程监控、升级 WIFI remote monitoring and upgrading	手机 APP/PC 端 Mobile APP/PC End	
设计寿命 Design lifespan	10 年 10Years	
质保时间 Warranty period	5 年 5Years	
IP 等级 IP level	IP65	
工作温度范围 Working temperature range	Charge: 0°C--55°C Discharge: -10°C--55°C	
储存温度 Storage Temperature	-20°C--60°C	

6. 逆变器规格参数 Inverter specification parameters

项目 Item	参数 Rating	备注 Note
电池输入数据 Battery Input Data		
电池类型 Battery Type	磷酸铁锂电池 Lithium battery	
电池电压范围 Battery Voltage Range	180V-750V	
最大充放电电流 Max. Charge/Discharge Current	30A/30A	
最大充放电功率 Max. Charge/Discharge Power	15000W	
光伏组件输入数据 PV String Input Data		
光伏最大输入功率 Max. PV Input Power	22500W	
光伏最大输入电压 Max. PV Input Voltage	1000V	
MPPT 电压范围 MPPT Range Voltage	200V-850V	
SPS 启动电压 SPS Start-up Voltage	180V	
MPPT 额定功率范围 MPPT Range for Nominal Power	350-800V	
光伏额定输入电压 Nominal PV Input Voltage	620V	

最大输入电流 Max. Input Current	15/30	
最大短路电流 Max. Short Current	20/40	
MPPT 数量 No. of MPPT trackers	2	
Strings per MPPTTracker	1/2	
交流输出数据 (并网) AC Output Data (On-grid)		
额定反馈电网功率 Nominal Power Output to Grid	15000VA	
最大反馈电网功率 Max. Power Output to Grid	15000VA	
最大电网输入功率 Max. Power from Grid	25000VA	
额定输出电压 Nominal Output Voltage	400/380,3L/N/PE	
额定输出频率 Nominal Output Frequency	50/60Hz	
最大 AC 反馈电网电流 Max. AC Current to Grid	22.7A	
最大 AC 输入电网电流 Max. AC Current from Grid	36A	
输出功率因数 Output Power Factor	1 (Adjustable from 0.8 leading to 0.8 lagging)	
输出 THDi (标称功率) Output THDi (Nominal Power)	<3%	
三相不平衡 Three Phase Unbalance	YES	
交流输出数据 AC Output Data (Back-up)		
最大输出功率 Max. Output Power	15000VA	
峰值输出功率 Peak Output Power	24000VA,10sec	
最大输出电流 Max. Output Current	22.7A	
额定输出电压 Nominal Output Voltage	3/N/PE,220V/380V,230V400V	
额定输出频率 Nominal Output Frequency	50/60Hz	
输出 THDv (@线性负载) Output THDv (@Linear Load)	<3%	
切换时间 Switch time	<10ms	
负载控制 Load Control	YES	
效率 Efficiency		
MPPT 效率 MPPT efficiency	99.90%	
最大效率 Max. efficiency	98.4%	
欧洲效率 Euro-efficiency	97.60%	
一般性规格 General Data		
操作温度范围 Operating Temperature Range	-25°C~+60°C	
相对湿度 Relative Humidity	0-100%	
工作海拔高度 Operating Altitude	≤2000M	
冷却方式 Cooling	智能风冷 Smart Fan Cooling	

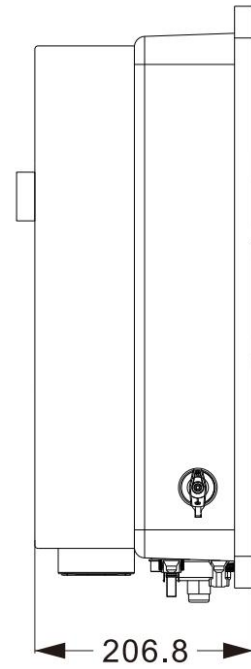
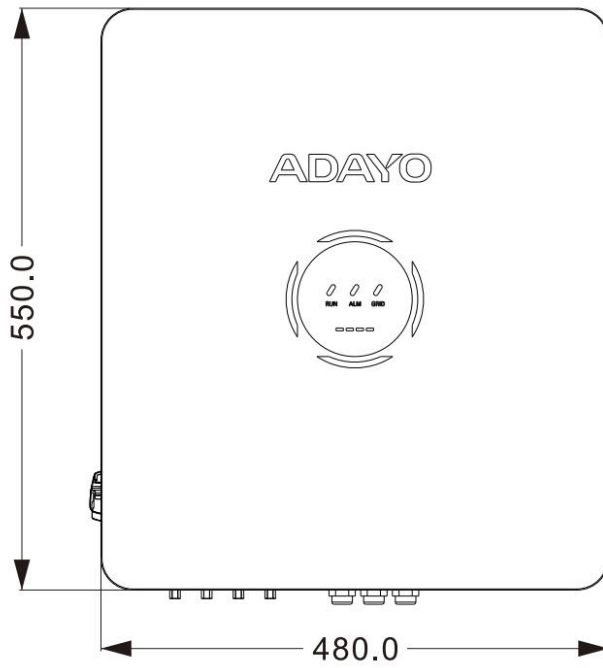
噪音 Noise	<50dB	
重量 Weight	30.0kg	
尺寸 Size(W/H/D) (mm)	480×550×215(mm)	
安装方式 Installation	壁挂式 Wall-Mounted	
防护等级 Protection Degree	IP65 (户外应用) IP65(outdoor application)	

7. 电池组参数 Battery pack parameters

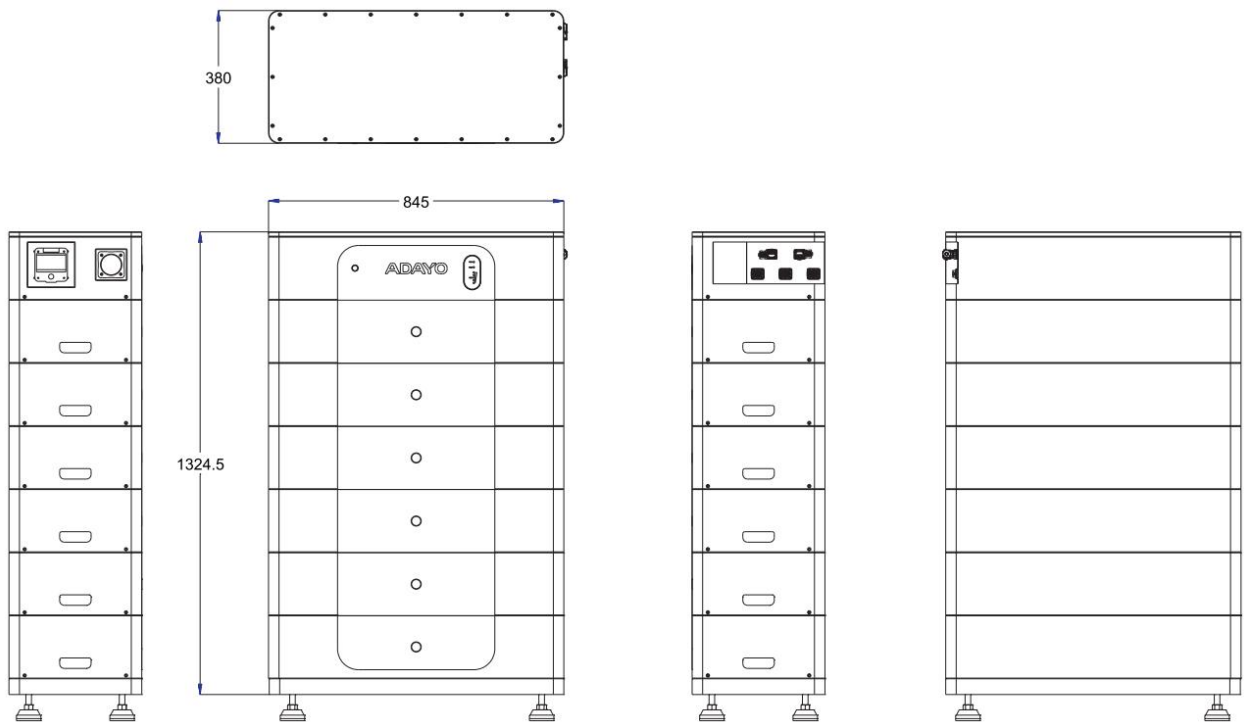
项目 Item	参数 Rating	备注 Note
电池类型 Type	LiFePO ₄ Battery	
组合方式 Pack Method	32S1P	
标称容量 Nominal capacity	50Ah	
标称电压 Nominal voltage	614.4V	
能量 Energy	30720Wh	
充电方式 Charge method	CC/CV	
充电截止电压 Charge cut-off voltage	700.8V	
放电截止电压 Discharge cut-off voltage	480V	
最大持续充/放电电流 Max. continues charge/discharge current	25A	
运行效率 Operating efficiency	98%	
循环寿命 Cycle life	≥6,000 times	
内阻 Internal impedance	≤100mΩ	
尺寸 Size(W/H/D) (mm)	845×380×1324.5(mm)	
通讯方式 Communication Mode	CAN, RS485	
WIFI 远程监控、升级 WIFI remote monitoring and upgrading	手机 APP/PC 端 Mobile APP/PC End	
重量 Weight	Approx. 340kg	
IP 等级 IP level	IP65	
工作温度范围 Working temperature range	Charge: 0°C--55°C Discharge: -10°C--55°C	
储存温度 Storage Temperature	-10°C--45°C	
安装方式 Installation	落地式 Floor standing	
防护等级 Protection Degree	IP65 IP65	

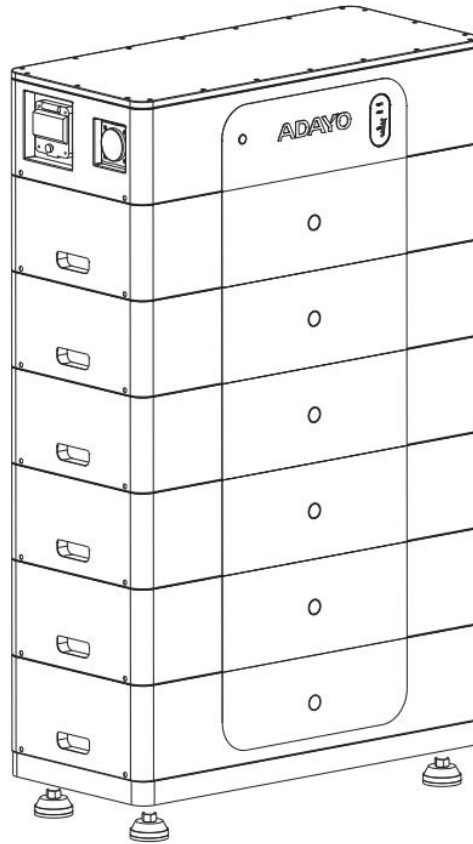
8. 系统外观及尺寸 System appearance and dimensions

8.1 逆变器外观及尺寸 Appearance and size of inverter



8.2 电池组外观及尺寸 Appearance and size of battery pack





9. 产品出货外观标准 Product Shipping Appearance Standards

按照此规格书要求，正常储存或操作，电池不应出现破裂、划痕、变形、污迹、电解液泄露等不良现象。
It shall be free from any defects such as scratch, distortion, contamination and leakage.

10. 出货带电量 Delivery Condition

正常情况下，电池出厂前带电量 50%。
Approx. 50% charged.

11. 警告 Warnings

11.1 为防止电池可能发生的泄漏,发热,起火,请注意以下预防措施:

To prevent the possibility of the battery from leaking, heating, fire, Please READ this specification carefully before usage and observe the following precautions:

- ⊙ 严禁将电池系统裸露放置于室外雨淋。
- ⊙ 禁止将电池在热高温源旁,如火,加热器等使用设备。
- ⊙ 禁止颠倒正负极使用电池。
- ⊙ 禁止将电池直接接入电源插座。
- ⊙ 禁止将电池丢入火或加热器中。
- ⊙ 禁止用金属直接将电池的正负极进行短路连接。
- ⊙ 禁止敲击或抛掷,踩踏电池等。

- ⊙禁止直接焊接电池和用钉子或其它利器刺穿电池。
- ⊙搬运、装配、试验过程中应避免电池箱倒置。
- ⊙充放电时，严禁用其他物品覆盖在电池箱上，否则热量积累，会导致电池出现性能下降、漏液等问题。
- ⊙用户未经允许，不得随意打开电池箱，严禁拆卸电池，以免损伤绝缘部件，导致短路、影响使用。
- ⊙严禁擅自改装电池系统。在电池组中，为防止发生危险，装有保护系统，若保护系统遭到损坏，可能导致充电无法控制，或者充放电电流超过设定边界值，从而造成电池漏液、发热、破裂。
- ⊙Prohibit to let battery pack bareness on outdoor for rain.
- ⊙Do not use and leave the battery near a heat source as fire or heater.
- ⊙Do not reverse the position and negative terminals.
- ⊙Do not connect the battery to an electrical outlet.
- ⊙Do not discard the battery in fire or heat it.
- ⊙Do not transport and store the battery together with metal objects such as necklaces, hairpins etc.
- ⊙Do not directly solder the battery and pierce the battery with a nail or other sharp object.
- ⊙To avoid battery in version when carriage, assemble, test.
- ⊙Do not allow others objects on battery cabinet when charge and discharge, or it will cause hot accumulation, leading to battery performance decline or leakage issue and so on.
- ⊙Users cannot open the battery cabinet without permit, prohibit to break down battery pack, to avoid break insulation to short circuit and effect on usage.
- ⊙Prohibit to refit battery pack. The manufacturer install protection system for it in order to prevent danger, if protect system broken, it leads that charge cannot control properly, or charge and discharge current is beyond than the set value, to its leakage, heat and fracture.

11.2 电池操作说明 Battery operation instruction

11.2.1 充电 Charge

充电电流：不能超过规格书规定的最大的充电电流

充电电压：不能超过规格书规定的最高的限制电压

充电温度：电池充电温度必须按照规格书的温度范围执行

先恒流后恒压方式充电，禁止颠倒的方式充电。如果电池正负极颠倒充电会带来危险。

Charging current: Do not surpass the biggest charging current which in this specification.

Charging voltage: Do not surpass the highest voltage which in this specification.

Charge temperature: The charge temperature is in according to this specification.

11.2.2 放电电流 Discharge

电池放电电流不能超过规格书规定的最大放电电流，

过大的电流放电会造成电池发热和容量衰减。

电池放电温度必须按照规格书的温度范围执行

Discharge current: Do not surpass the biggest discharge current which in this specification.

Discharge voltage: Do not be less than the lowest voltage which is in this specification.

Discharge temperature: The discharge temperature is in according to this specification.

11.2.3 过放电 Over-discharge

短时间的的过充过放不影响电池的使用，但是长时间的过放电会影响到电池的功能失效，电池永久性不能适用，可能电池过放还有一个原因是自动能量的消失。预防电池过放的出现方法电池应保持一定的电量。

After the short time excessively discharges charges immediately cannot affect the use, but the long time excessively discharges can cause the battery the performance, battery function losing. The battery long-term has not used, has the possibility to be able to be at because of its automatic flashover characteristic certain excessively discharges the

condition, for prevented excessively discharges the occurrence, the battery should maintain the certain electric quantity.

11.2.4 贮存电池 Storage

电池贮存在规格书规定的温度范围内，如果电池贮存超过三个月，建议你开始给电池充电。

The battery should store in the product specification book stipulation temperature range. If has surpasses above for 3 months the long time storage, suggested you should carry on additional charge to the battery.

11.2.5 连续充电时间不能超过 8 个小时.

Please do not continuously charge the battery over 8hours.

12. 其它事项 Others

⊙客户若需要将电池用于超出文件规定以外的设备，或在文件规定以外的使用条件下使用电池，应事先联系本公司，因为需要进行特定的实验测试以核实电池在该使用条件下的性能及安全性。

⊙对于在超出文件规定以外的条件下使用电池而造成的任何意外事故，本公司概不负责。

⊙如有必要，本公司会以书面形式告之客户有关正确操作使用电池的改进措施。

⊙任何本说明书中未提及的事项，须经双方协商确定。

⊙If the customer needs to use the battery for equipment other than those specified in the document, or under conditions other than those specified in the document, he should contact the Company in advance, as specific laboratory tests are required to verify the performance and safety of the battery under such conditions of use.

⊙The Company is not responsible for any accidents caused by the use of the battery in conditions other than those specified in the document.

⊙If necessary, the Company will inform the customer in writing about the improvement measures for the proper operation and use of the battery.

⊙ Any matters not mentioned in this specification shall be determined by both parties through negotiation.